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## Colby College Climate Action Plan 2010

Colby College

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# Colby College Climate Action Plan



Carbon Neutrality by 2015  
May 14, 2010

# Colby College Climate Action Plan

<b>CONTENTS</b>	<b>1</b>
<b>EXECUTIVE SUMMARY</b>	<b>2</b>
<b>1. INTRODUCTION</b>	<b>2</b>
<b>2. GOALS FOR CARBON NEUTRALITY AND ENVIRONMENTAL SUSTAINABILITY</b>	<b>3</b>
<b>3. GREENHOUSE GAS EMISSIONS INVENTORY</b>	<b>3</b>
FY 2009 Emissions	4
Past Emissions & Trends	5
<b>4. GREENHOUSE GAS REDUCTION STRATEGIES</b>	<b>6</b>
Green Policies and Practices	6
Facilities, Grounds, and Campus Development	6
Energy	7
Waste Management & Recycling	7
New Sustainability Initiatives	8
Sequestration	9
Conservation/Behavior	9
Offsets	9
<b>5. ENVIRONMENTAL EDUCATION, RESEARCH, AND COMMUNITY ENGAGEMENT</b>	<b>9</b>
Education and Research	10
Community Engagement	11
<b>6. FINANCING</b>	<b>12</b>
<b>7. TRACKING PROGRESS</b>	<b>12</b>
<b>APPENDIX A: Colby College Actual and Projected Emissions</b>	

## Executive Summary

Colby College aspires to be a leader in environmental sustainability and in furtherance of this goal, seeks to become carbon neutral by 2015. This plan provides important background information on Colby's longstanding interest in and commitment to environmental stewardship. It documents the College's emissions since 1990 and a number of important accomplishments already achieved. The plan outlines what's next for Colby and commits the College to monitor progress on the path to carbon neutrality.

Colby's 2009 emissions inventory shows that 70 percent of our emissions come from heating fuels, 18 percent from college-related travel, and 7 percent from commuters (students and employees). Building on Colby's very solid foundation of carbon-reducing initiatives to date, Colby will achieve carbon neutrality by: building a biomass facility; stepping up efficiency, conservation, and waste-minimization efforts; exploring alternative energy vehicles to reduce fleet emissions; promoting online meetings and better-coordinated travel; and purchasing renewable energy credits and carbon offsets to close the remaining gap between our emissions and neutrality.

The plan also seeks to further build upon the strengths of the academic program to educate Colby students, faculty, staff, and visitors about leading sustainable lives and the critical role they can play in reducing Colby's environmental impact. A sustainability coordinator will be hired to coordinate campus sustainability efforts and to further raise environmental awareness and effect conservation.

## 1. Introduction

A primary goal of a liberal college education is to develop broadly enlightened individuals prepared to become leaders and innovators who will create solutions to problems and make decisions that will make the world a better place in the future. At Colby we recognize that global climate change, pollution, environmental degradation, and loss of biological and ecosystem diversity are key challenges of our times. Campus sustainability and resource conservation are among the seven fundamental core values of the College, which help shape Colby's vision for the future. Colby seeks to lead by example to foster morally responsible environmental stewardship through education, conservation, and conscientious policies and procedures. Environmentally safe practices inform and guide campus strategic planning, decision-making, and daily operations. We urge community members to recognize personal and institutional responsibilities for reducing their impact on the local and global environment.

In keeping with these values, in 2001, Colby formed the Environmental Advisory Group (EAG), a working group comprised of students, faculty and staff, to advise the president and the College community on issues related to environmental stewardship including sustainability, conservation, and alternative energy. Since its founding, the EAG has proven successful at conceiving, evaluating, recommending, and helping implement an array of ambitious green initiatives. With the support of the EAG, Colby has committed to reduce emissions of greenhouse gases by signing the State of Maine Governor's Carbon Challenge in 2005, and the American College and University Presidents Climate Commitment (ACUPCC) in 2008.

Colby offers its students many avenues to learn about the environment and environmental sustainability through coursework in Environmental Studies and other departments at the College, field research with faculty, which is facilitated by Colby's ready access to the ocean, lakes and

mountains, and co-curricular endeavors, which engage students, faculty, and staff in strategic environmental initiatives both on campus and in the greater Waterville community.

Colby has long been committed to promoting environmental stewardship and sustainability and plans to express this commitment by becoming carbon neutral by 2015.

## **2. Goals for Carbon Neutrality and Environmental Sustainability**

The EAG, working closely with key administrators, has identified broad goals for Colby that are meaningful, measureable, and challenging. These goals include:

- Reduce greenhouse gas emissions 41 percent from current levels by 2015 through improvements in campus operations, energy conservation investments including construction of a biomass plant, and reduced consumption.
- Achieve carbon neutrality by 2015 through the actions described above and the purchase of carbon offsets.
- Maximize efficient use of existing campus facilities, minimize new campus development, and operate facilities as efficiently and sustainably as possible.
- Design necessary new facilities to achieve, at a minimum, Leadership in Energy and Environmental Design (LEED) “silver” standard and apply LEED principles in major renovations of existing facilities.
- Maintain and enhance College operations in addition to facilities to reduce environmental impact (e.g., local purchasing, waste minimization, recycling).
- Develop aggressive education and outreach programs to raise environmental awareness and increase personal responsibility for sustainable living among students, faculty, and staff. Provide administrative and financial resources to support sustainability programs.
- Enhance environmental educational opportunities that further integrate sustainability in the curriculum and use the campus as a living laboratory for faculty and students.

## **3. Greenhouse Gas Emissions Inventory**

An honors project by an Environmental Studies student produced the first inventory of Colby’s emissions of greenhouse gases in 2007 as an effort to study the College’s carbon footprint. As the emissions inventory process has moved from an intellectual exercise used primarily to educate campus community members, to a tool that also helps the College make sustainability decisions, the task of completing the emissions inventory has been shifted to Colby’s Office of Institutional Research (IR). While students continue to assist with information gathering and some data analysis, the oversight of the Institutional Research Department provides continuity and simplifies the data reporting process.

Efforts have been made to gather historical data so that campus emissions trends could be quantified. For the purposes of evaluating performance relative to the Maine Governor’s Carbon Challenge, research was done to pinpoint data from 1990 so that emissions data from that year could serve as a baseline. For the purposes of trend analysis and to measure the impact of new initiatives, data were gathered for 1994, 1998 and then annually from 2002 through the latest fiscal year. While it was difficult to gather some historical data, wherever concrete data were unavailable, estimates were carefully calculated to the best of our ability.

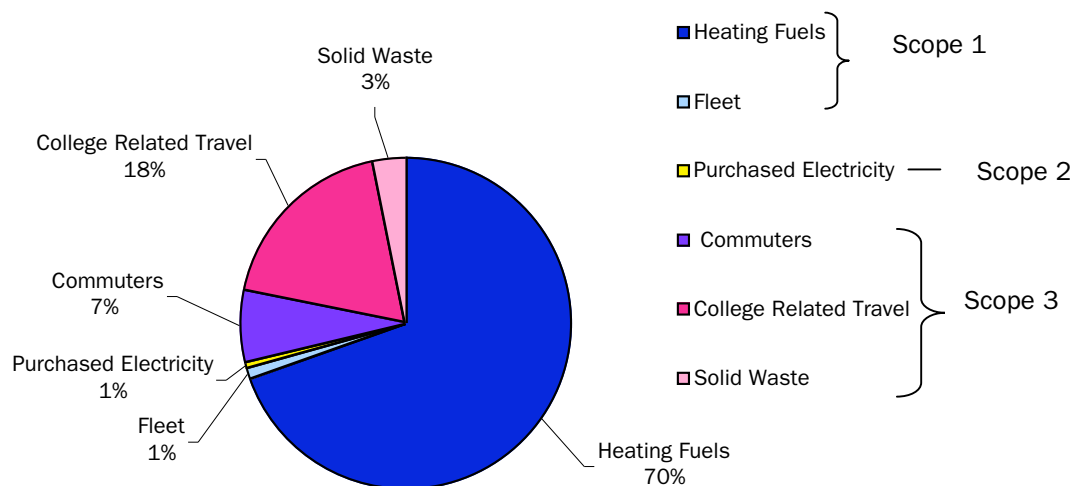
Colby’s 2009 emissions inventory was calculated using the Clean Air-Cool Planet (CA-CP) Campus Carbon Calculator v6.4. Slight differences between historical emissions data in this report and

those in past emissions reports are attributable to additional features in the v6.4 Campus Carbon Calculator and new information discovered during the latest inventory process.

## FY 2009 Emissions

Colby's gross greenhouse gas emissions were 19,170 MT eCO<sub>2</sub><sup>1</sup> in 2009. As shown in Figure 1, 70 percent of the College's emissions can be attributed to heating fuels, which comprised all but a very small fraction of Colby's Scope 1 emissions.<sup>2</sup> About 18 percent of Colby's emissions were due to college related travel and staff, faculty and student commuters accounted for 7 percent, and other sources combined for 5 percent. Scope 3 emissions accounted for 29 percent of Colby's calculated carbon footprint.

**Percent Contribution to Gross GHG Emissions by Source  
Colby College FY 2009**



**Figure 1**

<sup>1</sup> MT eCO<sub>2</sub>, also MTCDE - stands for Metric Tons of Carbon Dioxide Equivalent, which is the unit of measurement of greenhouse gases.

<sup>2</sup> Emissions scopes are defined as follows:

Scope 1 emissions: all direct emissions from sources owned or controlled by the institution

Scope 2 emissions: indirect emissions from the purchase of electricity, steam, heating and cooling

Scope 3 emissions: all other indirect sources of emissions not in Scope 2

## Past Emissions & Trends

Colby's 2009 gross greenhouse gas emissions of 19.1 thousand MT eCO<sub>2</sub> were more than 7 percent higher than the College's gross emissions for 1990, however, Colby's emissions per square foot have decreased more than 18 percent during this period despite a 32 percent increase in campus building space since 1990, and a 9 percent increase in student enrollment. Figure 2 details Colby's carbon emissions and energy use trends since 1990. Figure 3 contrasts Colby's carbon emissions on a "business as usual" approach to the emissions estimated after implementation of this plan.

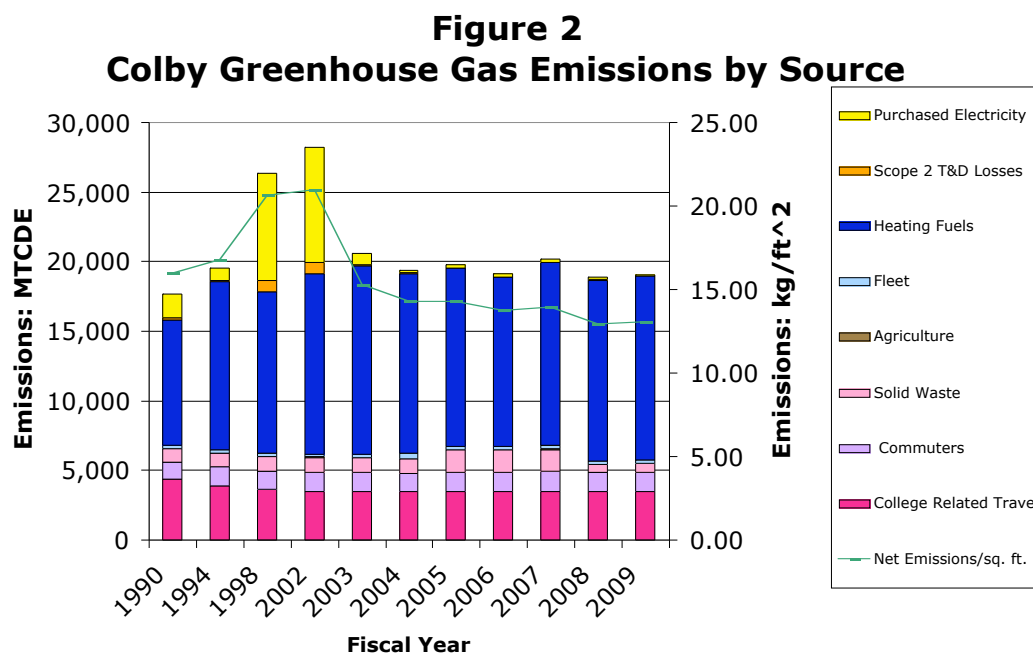
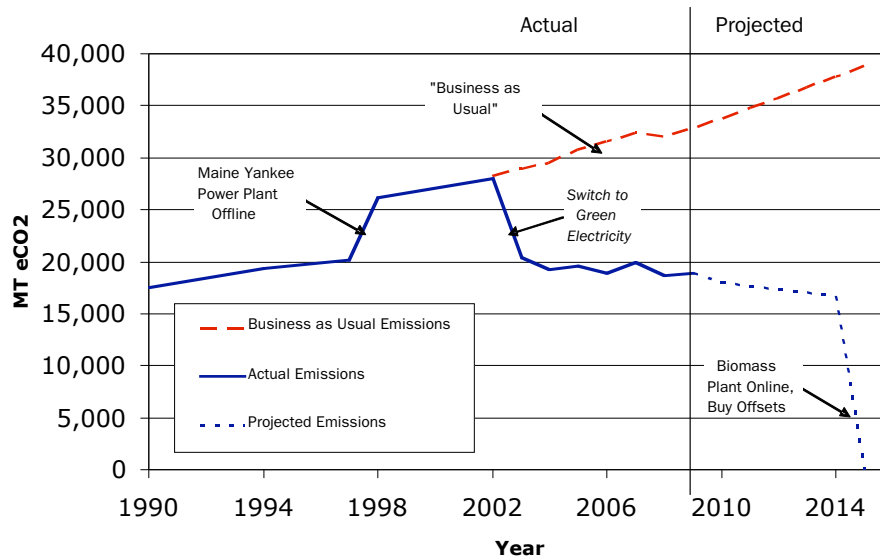


Figure 2. Greenhouse gas emissions by source at Colby College in intervals of four years for the first four data sets, then annually from 2002–2009. Net emissions per square foot of building space are shown by the green line and are measured along the secondary Y-axis on the right side of the graph.

- There was a significant increase in emissions from purchased electricity in 1998. The closure of the Maine Yankee Nuclear Power Plant in 1997 meant that Maine consumers no longer had access to electricity from this low greenhouse gas emitting power source. The standard electricity mix for Maine consumers for the five years from 1998–2002 was from much higher GHG emitting sources (up to 70 percent of the electricity purchased was from coal).
- Colby's emissions peaked around 28,000 MT eCO<sub>2</sub> in the early 2000s.
- In 2003, Colby began purchasing electricity from 100 percent renewable sources essentially reducing emissions from electricity purchases to zero.

**Figure 3**  
**Colby College Emissions Trajectory**



## 4. Greenhouse Gas Reduction Strategies

### Green Policies and Practices

Green policies and practices set standards and establish guidelines by which all members of the campus community, faculty, staff, and students, should operate. Green policies raise consciousness about energy and resource conservation, help streamline decision-making about purchasing and daily operations, and hopefully influence individual lifestyle choices with the ultimate goal of reaching zero greenhouse gas emissions and operating so that we can sustain our beautiful natural environment.

### Facilities, Grounds, and Campus Development

- For several years, Colby has been constructing new buildings according to LEED guidelines resulting in all three buildings erected since 2005 receiving LEED Silver or Certified accreditation. Colby will design and build all new buildings to a minimum of the LEED Silver standard.
- For renovations, design and construction will follow the LEED template and incorporate as many principles as possible, as demonstrated by the 2009 LEED Gold certifications for the renovation of two Colby residence halls. For all applicable projects, the College will apply for LEED certification through the U.S. Green Building Council.
- All of Colby's on-staff project managers are LEED-accredited professionals.
- Colby will strive to minimize new sources of emissions by controlling campus growth. Whenever possible the College will reuse or renovate existing space to meet emerging needs. Design of physical space will be done with an emphasis on function and efficiency, and will be done according to LEED standards.



- Colby continues to buy locally sourced consumables and materials for building projects whenever possible, minimizing emissions from transportation and supporting the local economy.
- Colby will continue to manage its landscaping and grounds in a manner consistent with best practices to minimize environmental impact. The Integrated Pest Management (IPM) system, in place since 1995 and rewritten in 2009, minimizes the use and toxicity of chemical application. Leaves and grass clippings are centrally collected and composted. Brush and limbs are chipped and reused on campus. Building and landscape design will continue to be done to manage storm water runoff; Colby will strive to use only native or naturalized plants as landscaping is updated or added to campus.

## Energy

- Colby will continue to purchase electricity generated from 100 percent renewable sources, something it has done since 2003. Colby currently chooses low-impact hydro and wind as its sources for purchased power. In addition, 10 percent of Colby's power demand is co-generated at the campus steam plant.
- Building temperature setbacks during vacation periods first done in 2008-09 demonstrated the energy savings potential of moderating campus climate control. Heating and cooling standards have been established to balance the goal of minimizing energy use with the comfort and productivity of building occupants. In the winter, academic and residential spaces will be heated to 66 to 68 degrees Fahrenheit. While the majority of buildings on campus do not have air cooling systems, in the summer months, those that do will be cooled to between 72 and 78 degrees. However, special purpose spaces will be climate controlled according to specific requirements of the animals, instruments, or artwork they contain.
- Colby will continue to recommend to students to purchase *Energy Star* certified new appliances and electrical equipment whenever possible. Departments will continue to purchase *Energy Star* products when available. *Energy Star* products are classified by the EPA as having superior energy efficiency.
- Emerging technologies in photovoltaics, wind power generation, and solar thermal are making these energy sources increasingly viable alternatives for campus energy generation. Colby will implement small pilot projects with these technologies both to evaluate their effectiveness in our total energy mix and to provide educational opportunities for our students as part of classroom instruction and student research projects.

## Waste Management & Recycling

- Colby has a policy of purchasing 100 percent recycled, non-chlorinated paper products, and purchasing those products, as well as food items and cleaning supplies, in bulk to reduce the quantity of packaging material.
- RESCUE (Recycle Everything, Save Colby's Usable Excess) is a project that was developed by Colby and started in 2001-02 to capture clothing, household items, furniture, appliances, and other items that departing students leave behind. Items are collected, clothing and furniture are donated to local nonprofits, and other items are cleaned and stored in trailers for sale the following fall, taking literally tons of material out of the waste stream for reuse.
- Colby will continue to collect and compost all pre- and post-consumer food waste, all food service paper and unbleached napkins, and all leaves, grass clippings, and appropriate landscape debris.
- Colby will continue to encourage participation in the recycling program, which was started on campus over 20 years ago.

- Colby has a policy of using china and flatware whenever possible to avoid the use of disposables. When disposables must be used, products offered are biodegradable products made from paper, corn or potatoes.
- Colby will continue to operate its dining halls without trays. Tray-less dining saves an estimated 79,000 gallons of water and 50 tons of food waste each year.

## **New Sustainability Initiatives**

Having analyzed the various sources and their magnitudes of greenhouse gas emissions on campus, Colby has identified several major actions that can be taken to reduce emissions and enhance the College's level of environmental sustainability. New initiatives focus on the sources with the most significant emissions where the greatest emissions reductions can be made.

### **Biomass**

It is clear that to proceed towards carbon neutrality, the College must reduce emissions from its single largest source, the campus steam plant, which is currently fueled by #6 residual oil. Colby plans to build a biomass boiler plant to connect to the current steam facility. The proposed biomass plant would handle 90 percent of the campus steam demand and is estimated to offset the use of one million gallons of residual oil each year. The central steam plant will continue to cogenerate 10 percent of the campus electricity needs annually. It is estimated to cost \$11 million to construct and bring the new biomass facility online by 2015.

### **Renovations & Upgrades**

Colby's multi-year capital renewal plan includes major renovation projects for the Roberts Row residence halls, Roberts Union, the Alford Athletic Center, and other facilities. These projects will reduce emissions by addressing a variety of maintenance and renewal needs, including window replacement, HVAC upgrades, and newer, energy efficient lighting fixtures.

The College anticipates investing about \$3 million over the next five years in smaller HVAC, electrical, and other energy improvement projects to be defined each year based on need and potential cost savings.

Electricity savings will reduce use and cost, but not emissions since the College already purchases renewable source electricity. Reductions in steam and hot water production have the potential to reduce consumption, though moving to biomass will significantly reduce the savings in carbon emissions associated with the investments. Nevertheless, these investments are environmentally and economically appropriate. Completion of the projects is expected to result in overall energy savings of about 10 percent by 2015.

### **Fleet Vehicles, Travel, and Commuting**

Physical Plant and Security, the two primary departments with vehicles, have been replacing older vehicles with smaller, more fuel-efficient models as part of an on-going renewal program, which has reduced emissions from the campus Fleet by more than 10 percent since 2005. Colby's fleet now includes two hybrid vehicles and one electric vehicle. The College will explore additional alternative energy vehicles through the annual budget process with a goal of reducing fleet emissions by an additional 5 – 10 percent by 2015.

College travel is heavily focused on air travel, driven largely by off-campus programs, admissions and development travel, faculty research, and professional development.

Faculty, staff, and student commuters comprise about 7 percent of the College's emissions. Some reductions may be possible through efforts such as web conferencing and increased travel coordination, enhancement of carpooling, bike-sharing, and Zipcar programs, and improvements to the Jitney service.

### **Sequestration**

Colby's campus and other landholdings may provide an opportunity to reduce net carbon emissions through carbon sequestration. Past studies indicate that college-owned property includes about 500 acres of forest which, using a conservative conversion methodology, results in a carbon offset of approximately 170 MTCDEs that is currently included in Colby's emissions inventory. Application of commonly used and less conservative methodologies could double the benefit associated with sequestration. Additional research into the appropriate methodology, along with additional sequestration options, needs to be undertaken.

### **Conservation/Behavior**

While infrastructure projects, facility renovations, and equipment upgrades are essential in campus greenhouse gas reduction, these things alone are not the only ones we should undertake to reduce our emissions. In order to reach carbon neutrality, it is vitally important that everyone on campus becomes actively involved in efforts to reduce the campus carbon footprint. Getting students, faculty, and staff, individually and collectively, to conserve resources and embrace the goal of a sustainable campus is fundamental not only to our goal of carbon neutrality, but also our mission as an educational institution.

Colby will work to advance programs that encourage conservation and environmental awareness. The College anticipates hiring a full-time Sustainability Coordinator by 2013 to coordinate improvements in campus operations, promote conservation and environmental awareness and increase communication regarding sustainability efforts.

### **Waste Minimization**

Improved composting, recycling, and waste minimization programs, to be enhanced through the funding of a sustainability coordinator, should reduce solid waste generation by 10 percent by 2015.

### **Offsets**

Renewable energy purchases, efficient operations, and enhanced sustainability processes will not result in a zero-emission Colby. This plan envisions the College purchasing renewable energy credits and carbon offsets to close the gap to reach carbon neutrality for Colby. The long-term objective is to continue to reduce campus carbon emissions and decrease the reliance on offsets to attain carbon neutrality.

## **5. Environmental Education, Research, and Community Engagement**

Colby's Strategic Plan identified "The reinforcement of Colby's Environmental Studies Program, in both its policy and scientific formations, including a sustainable campus greening initiative" as a strategic objective. Environmental Studies (ES) program faculty and students are key contributors to Colby's signature greening initiatives, including energy and emissions reductions, food and waste initiatives, and community engagement.

## Education and Research

Colby's Environmental Studies Program (ES), created in 1971, is one of the oldest in the country. Faculty from many departments and programs representing every academic division of the College teach courses related to sustainability topics. The number of ES majors has grown from five in 1995-1996 to approximately 70 today. The number of minors in the ES Program is currently around 40. ES is the second-largest interdisciplinary major and among the top ten in number of majors per program/department. In addition, approximately 30 students major in one of the environmental science concentrations in biology or chemistry. The potential for growth in students interested in sustainability is high. Data from the Admissions Office show a growing number of applicants with an interest in the environment, and last year's applications showed the highest level of interest in the environment observed by that office.

Several components of the ES curriculum have served as national models for undergraduate environmental education, including an emphasis on the pedagogy of project-based learning and education through research developed with and recognized by major grants from the National Science Foundation, the Andrew W. Mellon Foundation, and others. Students are immersed in research experiences, data analysis and presentation, civic engagement, and developing communication and leadership skills beginning with our introductory ES courses and continuing through the senior ES capstone courses.

Colby faculty members are recognized nationally and internationally for their scholarship related to environmental economics, ecology, environmental chemistry, biodiversity conservation, energy, climate change, environmental policy, environmental history, and other sustainability topics. Students are engaged in collaborative research with faculty, as well as scholarship related to sustainability in courses and independent research. Colby recently celebrated the 10th anniversary of its Undergraduate Research Symposium, and ES is one of the largest contributors. Faculty development and integrated studies grants have encouraged new courses with sustainability themes, collaborative teaching about sustainability takes place across disciplines, and Colby has received major grants to hire postdoctoral fellows to develop new teaching and research initiatives related to environmental science, GIS, environmental justice, and international environmental human rights.

The ES Program supports co-curricular efforts. It fosters community behavioral change through environmental education, and it promotes climate change awareness working with student organizations such as the Environmental Coalition and Environmental Studies Club, the Environmental Advisory Group, and other departments and programs.

Colby intends to build on its strong Environmental Studies program by encouraging development of environmental sustainability content in the curriculum across all departments and divisions and by promoting and supporting faculty and student research opportunities that examine environmental sustainability problems or issues.

Strengthening campus connections to the environmental studies curriculum through co-curricular initiatives, such as organic gardening, recycling, creating and sustaining artificial wetlands, using buildings as energy laboratories, supporting student research that uses Colby as its laboratory and allows students to share their findings with faculty and administrators, and developing student-led efforts based on student research outcomes.

An example of a research project involving sustainability that will be continuing over the next several years:

**Belgrade Lakes Watershed Sustainability Project**

Faculty from the Colby Departments of Chemistry, Geology, and Biology; the Environmental Studies Program; and the Science, Technology, and Society Program are collaborating with the Belgrade Regional Conservation Alliance and with faculty at the University of Maine at Farmington to form interdisciplinary teams with stakeholder participation to understand the impact of landscape and lake-ecosystem changes in the development of central Maine. The Belgrade Lakes region will be used as a model because it provides a unique laboratory to understand the complex dynamics between environmental, biogeochemical, and socio-economic systems. This work is funded through a National Science Foundation, Maine EPSCoR grant and will support the research of seven Colby faculty and nine Colby students each year over the next five years.

**Community Engagement**

Through the ES Program and Goldfarb Center for Public Affairs and Civic Engagement, Colby has a strong civic engagement component in the curriculum and works closely with local and state communities and organizations, including annual studies of lakes in the region, the state of Maine's environment, environmental health, and mapping the environment of Maine with Geographic Information Systems (GIS). Some specific examples of community engagement initiatives are detailed below.

**Sustain Mid-Maine**

A grassroots initiative created to conserve resources, sustain the environment, and promote economic prosperity for the mid-Maine region; the coalition was created as the result of Colby students' efforts, under the supervision of Colby's academic Environmental Studies Program, to catalyze action on community sustainability issues. During the summer of 2009, five student interns supervised by the ES faculty worked with municipal governments and community groups to build sustainability capacity and momentum in Waterville and several nearby towns.

**Focus the Nation**

A dedicated group of students, including many ES majors, organized local events for Focus the Nation, a national teach-in and action day held Feb. 6, 2009. The mission of Focus the Nation is to accelerate the transition to a more just and prosperous clean energy future to combat the effects of climate change.

**America's Energy Future Forum**

On April 25, 2009, ES students and Environmental Coalition members organized America's Energy Future Forum, part of a nationwide collaboration with Focus the Nation, Greenpeace and the Sierra Student Coalition. More than 50 members of the local community convened with officials to discuss solutions for creating a clean energy economy. Student leaders met with aides to Senator Susan Collins and Congressman Mike Michaud after the forum to press for strong climate legislation from the United States government.

**Bottled Water Campaign**

Through the efforts of a student-led campaign to reduce bottled water use, Colby Catering used over 11,000 fewer bottles of water in 2009 and the Athletic Department has pledged to reduce team bottled water use by 10,000 bottles in 2010.

## 6. Financing

Operating	
Sustainability Coordinator position	\$ 100,000
Sustainability Office expense	50,000
Carbon Offset Credits	150,000
Net impact of biomass project*	<u>(650,000)</u>
Total operating expense	\$ (350,000)

2010-2016 Capital Investments	
Biomass Facility	\$ 11,000,000
HVAC, energy, window, and related projects	2,900,000
Energy Pilot Projects (windmills, solar, vehicles)	<u>100,000</u>
Total	\$ 14,000,000

\*Assumes 50 percent debt-financing, 50 percent gift/grant/plant funding

## 7. Tracking Progress

Colby will track its progress towards carbon neutrality through annual inventories of emissions conducted by the College's Office of Institutional Research. Even after carbon neutrality is reached, annual emissions inventories will serve as a tool to inform the College about the effectiveness of new infrastructure improvements and conservation efforts and will allow the College to adjust levels of offset purchases accordingly. The science and methodology of calculating GHG emissions is evolving rapidly. Based on calculations using the widely accepted Clean Air – Cool Planet Campus Carbon Calculator version 6.4, Colby intends to become carbon neutral by 2015. However, should accepted emissions computation methods change materially, the College will have to re-evaluate the validity of its strategy and target date for carbon neutrality.

Environmental education initiatives will be assessed through regular curricular review of the Environmental Studies Program and other departments. Sustainability research initiatives will be evaluated by the funding organizations and through academic peer review of published results.

**Appendix A:**
**Colby College Actual and Projected Emissions**

 MT eCO<sub>2</sub>

	Year	Heating Fuels	Fleet	Agriculture	Purchased Electricity	Commuters	College Related Travel	Solid Waste	Scope 2 T&D Losses	Biogenic Emissions	Gross GHG Emissions	Offsets (Sequestr, RECs)	Carbon Offsets Purchased	Net GHG Emiss	Unabated Emissions
<b>Actual</b>	<b>2002</b>	12,949	216	5	8,287	1,363	3,492	1,104	820		28,236	179		28,057	28,236
	<b>2003</b>	13,553	173	5	857	1,360	3,484	1,104	85		20,621	179		20,442	28,893
	<b>2004</b>	12,940	356	5	198	1,280	3,480	1,104	20		19,383	179		19,204	29,497
	<b>2005</b>	12,815	252	5	215	1,393	3,480	1,593	21		19,774	215		19,559	30,808
	<b>2006</b>	12,129	258	26	227	1,407	3,480	1,593	22		19,142	222		18,920	31,573
	<b>2007</b>	13,163	261	26	203	1,440	3,480	1,593	20		20,186	233		19,953	32,358
	<b>2008</b>	13,017	264	7	204	1,422	3,480	496	20		18,910	237		18,673	31,999
	<b>2009</b>	13,212	252	4	98	1,463	3,480	654	10		19,173	227		18,946	32,886
<b>Projected</b>	<b>2010</b>	12,958	248	4	0	1,448	3,445	142	0		18,245	229		18,016	33,812
	<b>2011</b>	12,747	244	4	0	1,434	3,411	139	0		17,979	305		17,674	34,766
	<b>2012</b>	12,539	241	4	0	1,415	3,377	136	0		17,712	309		17,403	35,748
	<b>2013</b>	12,344	237	4	0	1,417	3,343	134	0		17,479	311		17,168	36,760
	<b>2014</b>	12,133	234	4	0	1,417	3,309	131	0		17,228	315		16,913	37,803
	<b>2015</b>	6264	230	4	0	1,417	3,276	128	0	361	11,319	317	11,002	0	38,876

## Notes:

2002 – 2009: Actual emissions calculated through CA-CP Campus Carbon Calculator v6.4

## Assumptions:

Unabated Emissions (“Business as Usual”): 3% annual increases in Heating, Fleet, Electricity, T &amp; D, &amp; Travel. Rest of categories actual, then flat from 2009.

Projected: Heating Fuels: 10% from 2010 – 2015, then 48% decrease in emissions as biomass plant online in 2015; Fleet: 7.5% decrease by 2015; Commuters &amp; Travel: 5% decrease by 2015. Solid Waste: 78% decrease in 2010 due to methane recovery, then 2%/yr thereafter.